mecc
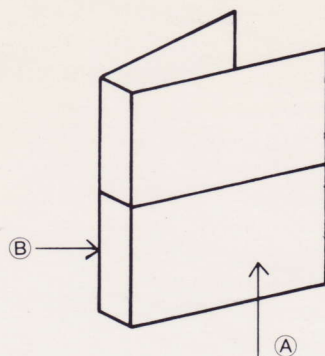
circus math

instructional computing courseware
for the **apple**® II computer

a product from the series
mastering math

How to use your MECC folder cover inserts

Tear cover on perforated lines. Place half-page title section in the clear vinyl pocket Ⓐ on the front of the binder. Insert finger-sized title in the clear plastic pocket on the spine Ⓑ.

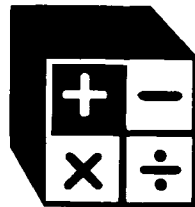a product from the series
mastering math

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This manual is compatible

with

the Circus Math diskette

Version 1.x

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INTRODUCTION

Circus Math is designed for second and third grade students and focuses on whole number addition objectives normally taught in second and third grade. Circus Math presents drills that reinforce and reward correct calculation of problems with game-like graphic sequences. Both vertical and horizontal problem formats are used. The programs are sequenced on the diskette according to the level of difficulty. The package keeps records on individual student performance, which are accessible through a teacher option.

Students can exit the program at any time by pressing the Esc (Escape) Key twice.

Circus Math is the second package in MECC's Mastering Math Series. Other packages are available for drill in whole number operations, as shown in the table below.

Three supplementary packages, Mastering Math Diagnostic System (No. A-149), Mastering Math Management System (No. A-150), and Mastering Math Worksheet Generator (No. A-151), are available for use with the entire series.

MECC'S MASTERING MATH SERIES

Package Title	Grade Level	Oper-ation	Types of Problems
1. Early Addition (No. A-788)	1-2	+	Addition facts and missing addends
2. Circus Math (No. A-109)	2-3	+	Addition problems with no regrouping
3. Addition Logician (No. A-125)	3	+	Addition problems with regrouping
4. Space Subtraction (No. A-145)	1-3	-	Subtraction facts and problems with no regrouping
5. Subtraction Puzzles (No. A-146)	3	-	Subtraction problems with regrouping
6. Multiplication Puzzles (No. A-147)	3-4	x	Multiplication facts, missing factors, no regrouping, and regrouping
7. Quotient Quest (No. A-148)	4	÷	Division facts, no remainders, and remainders

BACKGROUND INFORMATION

Circus Math provides drill and practice on the whole number addition objectives shown in the following chart. Problems matching these objectives are grouped together into five programs in varying frequency and according to level of difficulty. Circus Math is based on a mastery concept. Each group of objectives has a mastery percentage level. If a student meets this mastery level, the student is ready to move on to the group of objectives found in the next program; if not, the student needs to repeat the program.

Records of student performance are kept so the teacher can know whether the student has achieved mastery or needs additional help. You can view student records by accessing the Management Options menu. (See page 5.)

WHOLE NUMBERS - ADDITION ITEM FORMS

Objective Number	Description	Sample Problem(s)
WA9	Three addends; first step sum > 10	$\begin{array}{r} 6 \\ 5 \\ +\ 8 \\ \hline \end{array}$
WA11	A 1-digit addend plus a multiple of 10	$\begin{array}{r} 4 \\ +\ 30 \\ \hline \end{array}$ $5 + 80 = \underline{\qquad}$
WA12	Two addends; multiples of 10, 100, or 1000	$\begin{array}{r} 3000 \\ +\ 400 \\ \hline \end{array}$
WA13	Two 2-digit addends; no regrouping; sum < 100	$\begin{array}{r} 51 \\ +\ 33 \\ \hline \end{array}$
WA14	Three 2-digit addends; no regrouping; sum < 100	$\begin{array}{r} 35 \\ 21 \\ +\ 12 \\ \hline \end{array}$
WA15	Two 3-digit addends; no regrouping; sum < 1000	$\begin{array}{r} 527 \\ +\ 421 \\ \hline \end{array}$
WA16	A 1-digit addend plus a 3- or 4-digit addend; no regrouping	$\begin{array}{r} 4192 \\ +\ \ \ \ \ 5 \\ \hline \end{array}$
WA17	A 2-digit addend plus a 3- or 4-digit addend; no regrouping	$\begin{array}{r} 831 \\ +\ \ \ 34 \\ \hline \end{array}$

2

BACKGROUND INFORMATION (continued)

Objective Number	Description	Sample Problem(s)
WA18	Addends both multiples of 10	$\begin{array}{r} 30 \\ + 50 \\ \hline \end{array}$ $\quad$ 20 + 40 = _____
WA19	Addends both multiples of 100 or multiples of 1000	$\begin{array}{r} 300 \\ + 500 \\ \hline \end{array}$ $\quad$ 6000 + 3000 = _____
WA20	Two 2-digit addends; sum > 100	$\begin{array}{r} 94 \\ + 63 \\ \hline \end{array}$
WA21	Three 2-digit addends; sum > 100	$\begin{array}{r} 21 \\ 46 \\ + 82 \\ \hline \end{array}$
WA22	Two 3-digit addends; sum > 1000	$\begin{array}{r} 836 \\ + 341 \\ \hline \end{array}$

Objective Groupings

Circus Math has three Level 2 programs, one Level 3 program, and a review program. Each Level 2 program contains objectives roughly corresponding to those covered in second grade. These are presented in order of difficulty from CLOWN MAKER through HIGH WIRE. The Level 3 program, CANNON SHOOT, contains objectives roughly corresponding to those covered in early third grade. The review program, ELEPHANT WALK, covers all the objectives contained in the first four programs using a timed drill format.

Level 2 Programs	Level 3 Program	Review Program
CLOWN MAKER CLOWN CAR HIGH WIRE	CANNON SHOOT	ELEPHANT WALK

Each objective within a program is assigned a frequency percentage which indicates how often it will appear in the program. These are shown in the following charts. For example, a student working on CLOWN MAKER receives drills on both Whole Number Addition Objectives (WA11 and WA13), 20 percent of the problems being the WA11 type and 80 percent of the problems being the WA13 type.

The chart below contains the following data:

- level and objective group number;
- the number of problems presented by the program;
- the mastery level for the program;
- the objectives (with percentage of frequency) in the program;
- a brief description of the types of problems.

1. CLOWN MAKER (Level 2)		4. CANNON SHOOT (Level 3)		
Objective Group 4		Objective Group 1		
20 problems 80% mastery		25 problems 90% mastery		
Obj. % Obj. %		**Obj. % Obj. % Obj. %**		
WA11 20 WA13 80		WA9 16 WA11 8 WA12 4		
2-digit addends; no regrouping		WA13 8 WA14 8 WA15 8		
		WA16 8 WA17 8 WA18 4		
2. CLOWN CAR (Level 2)		WA19 4 WA20 8 WA21 8		
Objective Group 5		WA22 8		
20 problems 85% mastery		2-3 addends		
Obj. % Obj. % Obj. %				
WA11 5 WA13 5 WA14 90		**5. ELEPHANT WALK (Levels 2 and 3)**		
2-digit addends; no regrouping		Review program		
		20 problems 90% mastery		
3. HIGH WIRE (Level 2)		**Obj. % Obj. % Obj. %**		
Objective Group 6		WA9 8 WA11 8 WA12 8		
20 problems 90% mastery		WA13 8 WA14 8 WA15 8		
Obj. % Obj. %		WA16 8 WA17 8 WA18 8		
WA14 40 WA16 60		WA19 8 WA20 8 WA21 8		
1-4 digit addends; no regrouping		WA22 8		
		2-3 addends		

Problem Generation

All problems are generated using random numbers rather than being selected from a standard set of problems stored in the program. This ensures that each student will receive a unique lesson, regardless of how many times problems are generated for the same program.

If a student completes the allotted number of problems in the review program (ELEPHANT WALK) before the graphics sequence is completed, the program will generate problems until the sequence is complete. These extra problems are ignored by the program's record keeping.

BACKGROUND INFORMATION (continued)

Sound On/Off

Sound is used in these programs to make the programs more appealing and to help motivate the student. Since sound can be distracting in some classroom situations, an option to turn the sound off is included. Students can be directed to turn the sound off by selecting Option 7 on the Main Menu.

Management Options

You can use the Management Options by holding down the Control Key and pressing the "A" key while viewing the Main Menu of Circus Math. When you press Control-A, the Management Options menu appears as shown in Figure 1.
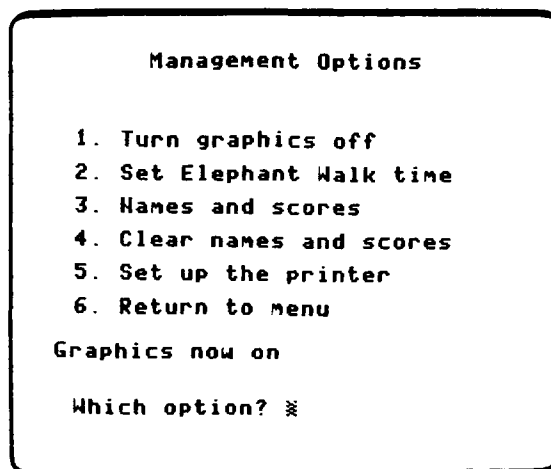
```
          Management Options


     1. Turn graphics off
     2. Set Elephant Walk time
     3. Names and scores
     4. Clear names and scores
     5. Set up the printer
     6. Return to menu
  Graphics now on

     Which option? ▨
```

Figure 1

Option 1:   "Turn graphics off/on" allows you to use the drills with or without graphic reinforcement. The graphics might be turned off for older students who are using the program remedially.

Option 2:   "Set Elephant Walk time" allows you to change the amount of time allowed before the computer's elephant takes a step. ELEPHANT WALK reviews objectives covered by the first four programs and is the only timed drill. Your diskette is currently set to allow six seconds between steps taken by the computer's elephant.

BACKGROUND INFORMATION (continued)

Option 3: Names and Scores allows you to view the records of individual students. When you access Option 3, a message tells you how many records have been entered (Figure 2).
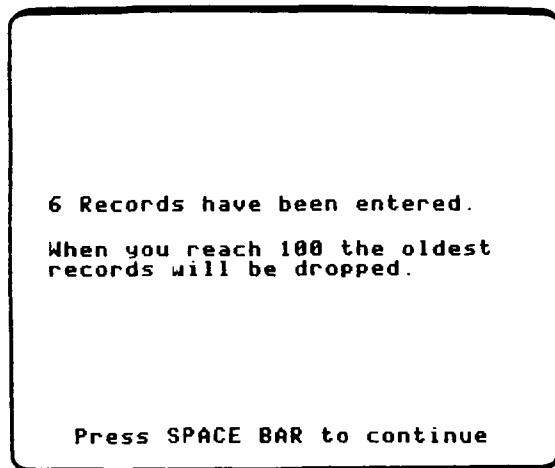
```
6 Records have been entered.

When you reach 100 the oldest
records will be dropped.




Press SPACE BAR to continue
```

Figure 2

```
                                   C    M
                                   O    A
                        N    L  G  G  R  S
                        U    E  R  I  R  T
                        M    V  O  V  E  E
                        B    E  U  E  C  R
                        E    L  P  N  T  Y
NAME                    R
------------------------------------------
JOHNSON, SALLY          3 2 6 20 15 NO
JOHNSON, SALLY          2 2 5 20 18 YES
JOHNSON, SALLY          1 2 4 20 20 YES
THOMAS, CHRIS           3 2 6 20 19 YES
THOMAS, CHRIS           2 2 5 20 18 YES
THOMAS, CHRIS           1 2 4 20 19 YES


    Press SPACE BAR to continue
```

Figure 3

Then the report (Figure 3) indicates that in whole number addition, Sally Johnson has mastered Level 2, Group 4 and Group 5, but has failed to master Group 6 (HIGH WIRE). Chris Thomas has progressed through Level 2, Group 6, and his next session should be at Level 3, Group 1 (CANNON SHOOT). The records are in reverse order of entry, so you can view the most recent records on the first frame.

This report can be printed if a printer is available. There is room on the diskette for 100 student records, which allows about 20 students to do all five programs and have their records retained on the diskette. Once the 100-record limit is reached, the records entered earliest are deleted as new ones are entered. When you access Option 3, a message tells you how many records have been entered.

Option 4: Clear Names and Scores allows you to erase the student records from the diskette when a class has finished using the programs.

Option 5: Set Up the Printer allows you to set up a printer to print the student records. See Appendix B for instructions on the use of this printer option.

Option 6: Returns you to the Main Menu.

USE IN AN INSTRUCTIONAL SETTING

Preparation

Students need to be assigned Circus Math programs which are appropriate to their skill level. Circus Math does not teach addition, but simply presents drills on whole number addition. Classroom instruction in the addition objectives covered by the program is necessary before students are drilled on these objectives. The Background Information section contains information necessary to match your students' abilities with an appropriate drill.

Since these programs are drills, the students probably need to use the computer individually. This may require some prescheduling.

Using the Programs

Students should use only those drills you have selected for them, based on their classroom preparation. Students need to know the facts or know how to do the calculations required in order to achieve mastery in the objective group covered by the program they are using. (See Background Information.)

If a student uses a program and does not achieve the mastery level, the final frame suggests he or she try the drill again. However, if a student is having difficulty understanding a particular type of calculation, repeating the drill will probably not help.

If a student does achieve mastery, the message suggests trying the next program, which covers the next objective group.

The student records will help you discover where your students are having difficulty. You can view the students records by pressing Control-A when on the Main Menu frame. This gives you the Management Options menu. One option allows you to view your students records. (See Background Information.) If a student has not achieved mastery, you may want to give that child some additional instruction. The diskette will hold up to 100 student records, after which the oldest record will be dropped.

The programs are organized according to level of difficulty, ranging from whole number addition objectives covered in second grade through objectives for the beginning of third grade: 1) CLOWN MAKER, 2) CLOWN CAR, 3) HIGH WIRE, 4) CANNON SHOOT, and 5) ELEPHANT WALK.

ELEPHANT WALK presents a review drill over all the objectives covered in the first four programs. It is the only timed drill. Some students do not perform well when pressured by a timed drill. A management option, accessed by pressing Control-A when on the Main Menu frame, allows you to set the amount of time a student is allowed for response. You might want to adjust this time for individual students.

ELEPHANT WALK could be used as a pretest, in which case you should extend the time limit for response and perhaps turn off the graphics. If students achieve mastery of ELEPHANT WALK, they may be too advanced to benefit from the previous four programs.

DESCRIPTION

CLOWN MAKER drills on whole number addition problems with a single-digit addend plus a multiple of ten and on problems with two 2-digit addends. All sums are less than 100, and no regrouping is required. After each group of four problems, the student chooses parts of a clown face and gradually makes a face of his or her own design.

Curriculum Area:	Arithmetic
Subject Area:	Addition
Topic:	Whole Number Addition
Type:	Drill and Practice
Grade Range:	2-3
Reading Level:	Beginning Readers
Classroom Use:	Individual

LEARNING OBJECTIVES

After using this courseware, the student will have received practice in:

- adding a 1-digit addend and a multiple of ten;

- adding two 2-digit addends with a sum less than 100.

CLOWN MAKER (Level 2)
Objective Group 4

20 problems		80% mastery	
Obj.	%	Obj.	%
WA11	20	WA13	80
2-digit addends; no regrouping			

PROGRAM PREVIEW

CLOWN MAKER is first in a series of whole number addition drills (Figure 1). A total of twenty problems are presented using the format shown in Figure 2.
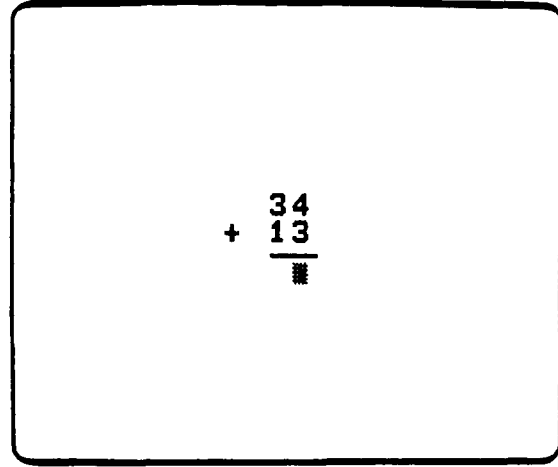
Figure 1

Figure 2

After every four problems, students select a face part to create their own clown face (Figure 3). At the conclusion of the drill (twenty problems), the clown face is shown (Figure 4).
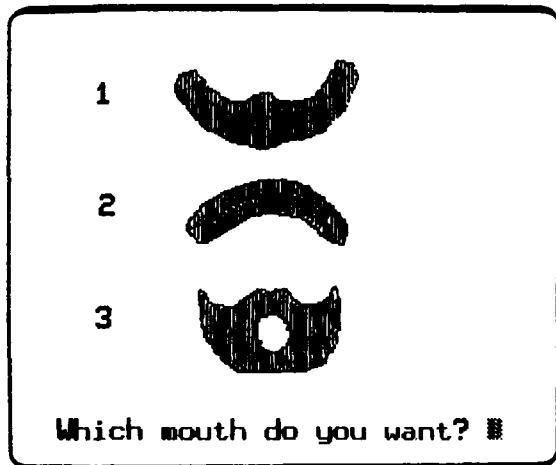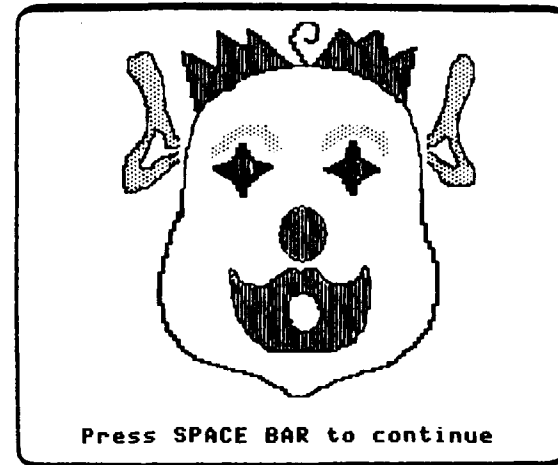

Figure 3

Figure 4

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PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly (Figure 5). If they answer incorrectly on the second try, help is provided by highlighting the columns to be added (Figure 6). The problem must be answered correctly before proceeding to the next problem.

Figure 5

Figure 6

Students receive a scoring frame at the end of a lesson. They are congratulated if they score at or above the mastery level (Figure 7). If they scored below the mastery level, they are encouraged to repeat the program (Figure 8).
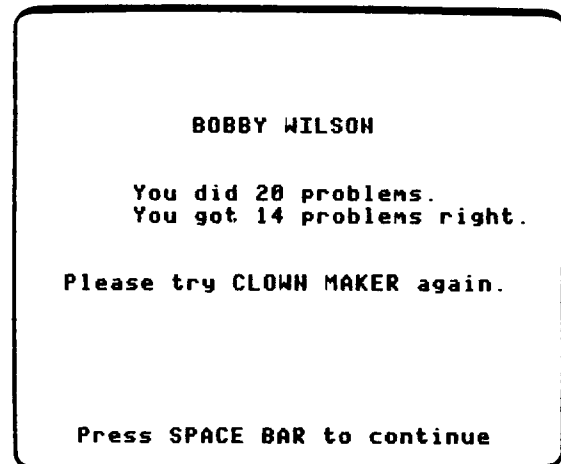
Figure 7

Figure 8

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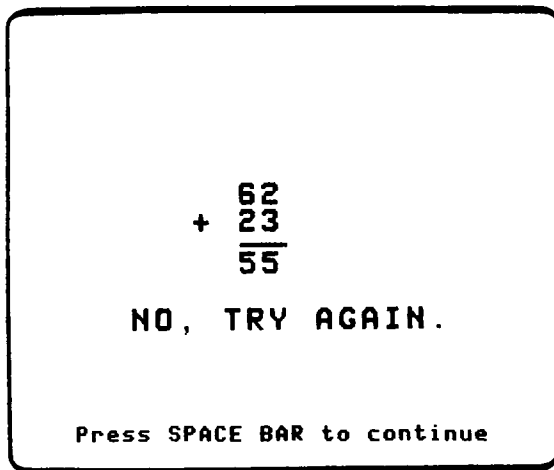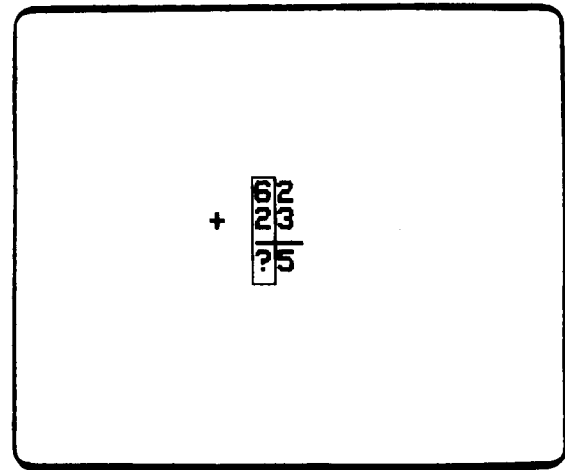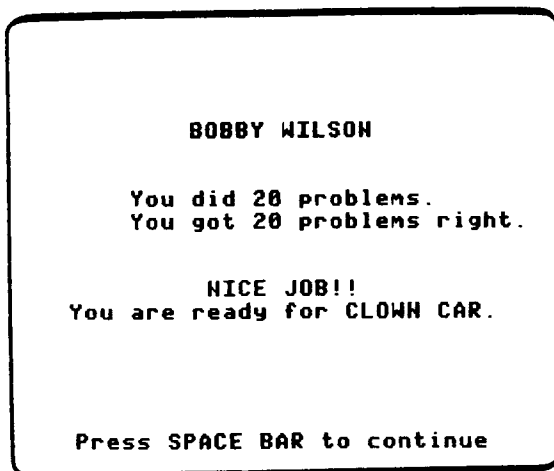
DESCRIPTION

CLOWN CAR drills on whole number addition objectives covered in CLOWN MAKER and problems with three 2-digit addends. All sums are less than 100, and no regrouping is required. Graphic reinforcement is provided by clowns filling up a clown car. After completing the twenty problems, the clowns exit the car and the car drives away.

Curriculum Area:	Arithmetic
Subject Area:	Addition
Topic:	Whole Number Addition
Type:	Drill and Practice
Grade Range:	2-3
Reading Level:	Beginning Readers
Classroom Use:	Individual

LEARNING OBJECTIVE

After using this courseware, the student will have received practice in:

● adding 2-digit addends with sums less than 100.

CLOWN CAR (Level 2) Objective Group 5 20 problems 80% mastery					
Obj.	%	Obj.	%	Obj.	%
WA11	5	WA13	5	WA14	90
2-digit addends; no regrouping					

PROGRAM PREVIEW

CLOWN CAR is second in a series of whole number addition drills (Figure 1). A total of twenty problems are presented using the format shown in Figure 2. When the first problem in every pair is answered correctly, the clown's umbrella goes up (Figure 2).
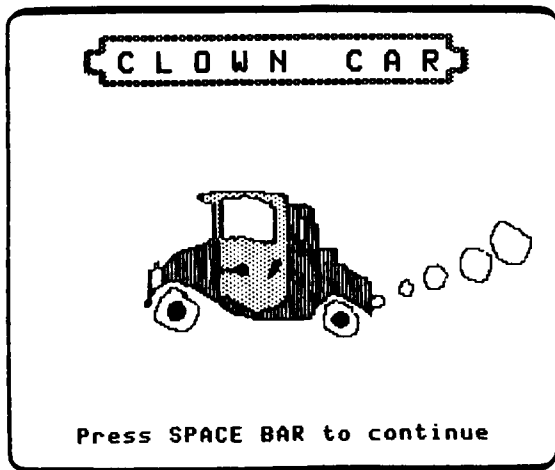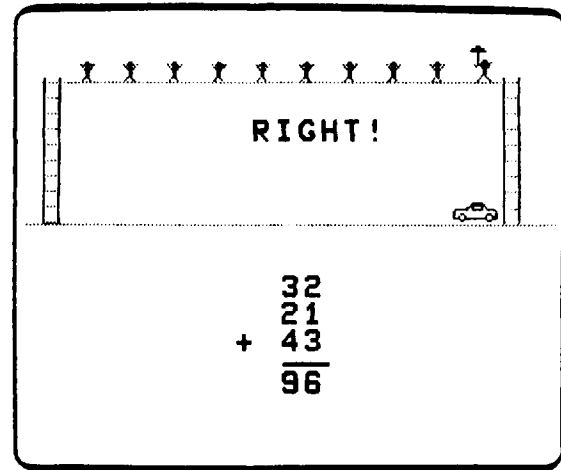

Figure 1

Figure 2

If the second problem in each pair is answered correctly, the clown descends into the car (Figure 3). At the conclusion of the drill, the clowns rescued from the high wire get out of the clown car (Figure 4).
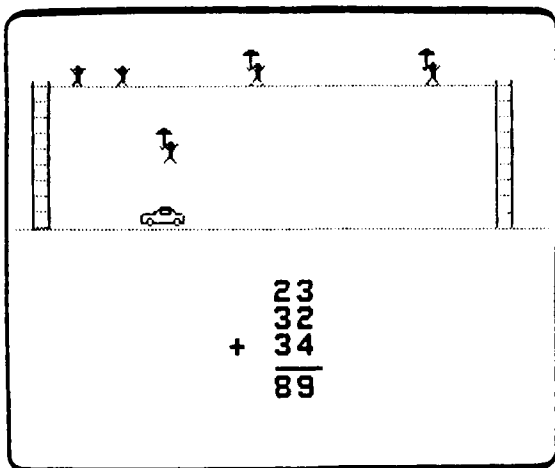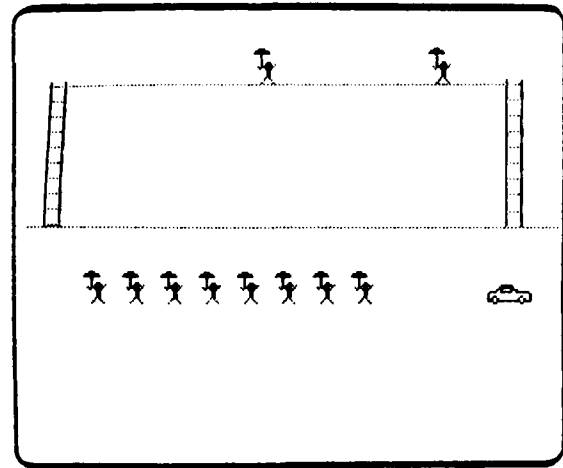

Figure 3

Figure 4

PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly (Figure 5). If they answer incorrectly on the second try, help is provided by highlighting the columns to be added (Figure 6). The problem must be answered correctly before proceeding to the next problem.
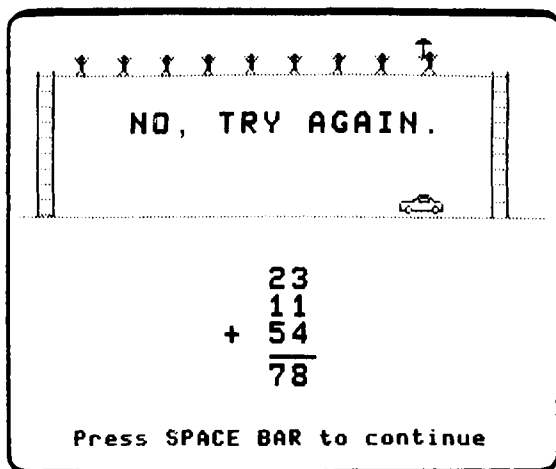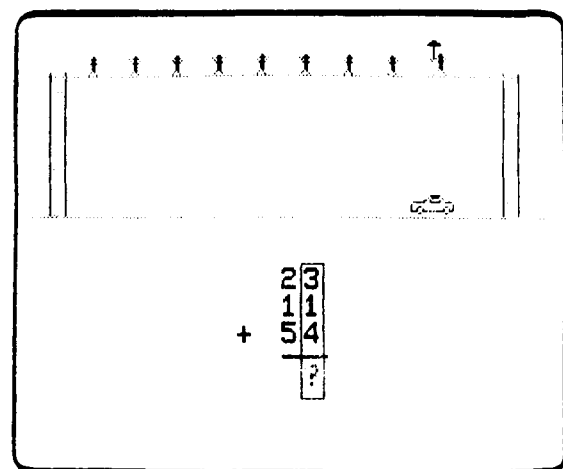

Figure 5

Figure 6

Students receive a scoring frame at the end of a lesson. They are congratulated if they score at or above the mastery level (Figure 7). If they scored below the mastery level, they are encouraged to repeat the program (Figure 8).
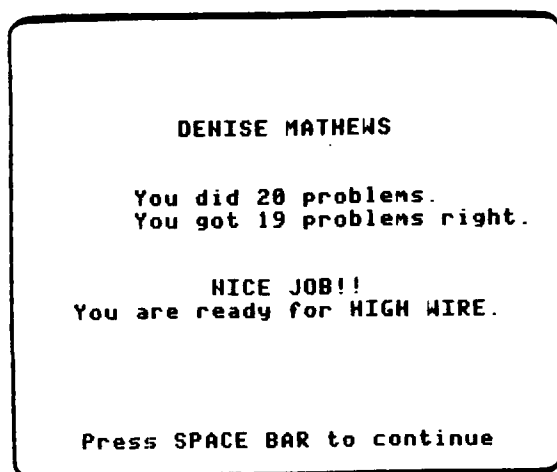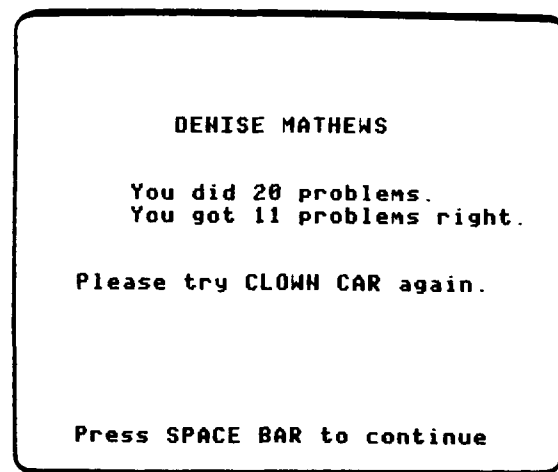

Figure 7

Figure 8

DESCRIPTION

HIGH WIRE drills on whole number addition objectives covered in CLOWN CAR and problems with a 1-digit addend added to a 3- or 4-digit addend. No regrouping is required. Graphic reinforcement is provided by a clown walking a high wire.

Curriculum Area:	Arithmetic
Subject Area:	Addition
Topic:	Whole Number Addition
Type:	Drill and Practice
Grade Range:	2-3
Reading Level:	Beginning Readers
Classroom Use:	Individual

LEARNING OBJECTIVE

After using this courseware, the student will have received practice in:

● adding 1-digit addends to 3- or 4-digit addends.

HIGH WIRE (Level 2)					
Objective Group 6					
20 problems		90% mastery			
Obj.	%	Obj.	%	Obj.	%
WA14	40	WA16	60		
1-4 digit addends; no regrouping					

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PROGRAM PREVIEW

HIGH WIRE is third in a series of whole number addition drills (Figure 1). A total of twenty problems are presented using the format shown in Figure 2. As problems are answered correctly, the clown will climb up the ladder (Figure 2).
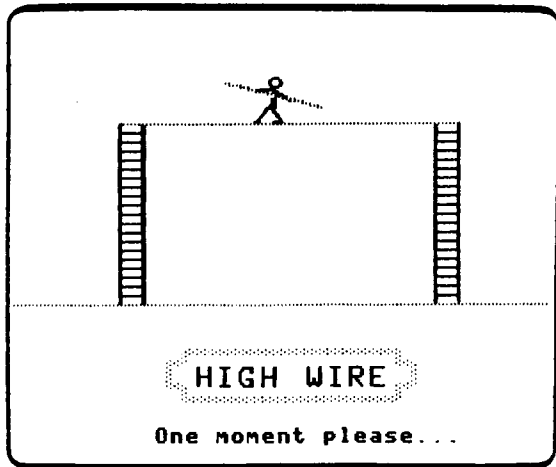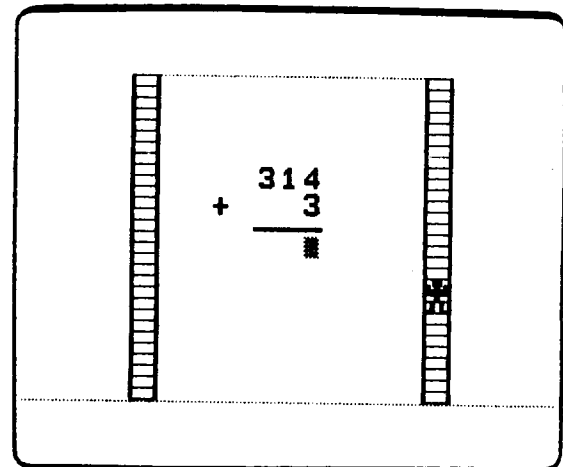

Figure 1

Figure 2

After reaching the top of the ladder, the clown will start walking across the high wire (Figure 3). The student must achieve mastery if the clown is to reach the other side. Additional correct answers will result in the clown returning to the ground (Figure 4).
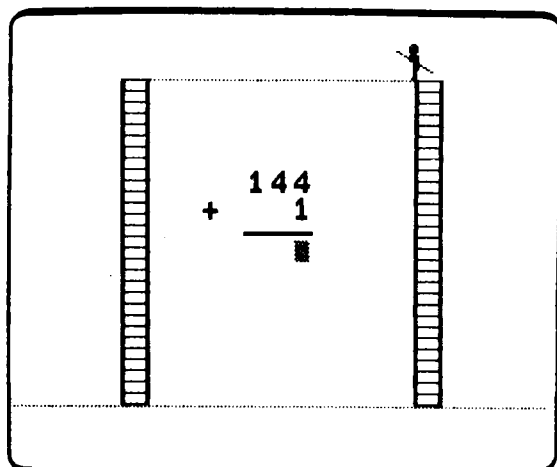
Figure 3
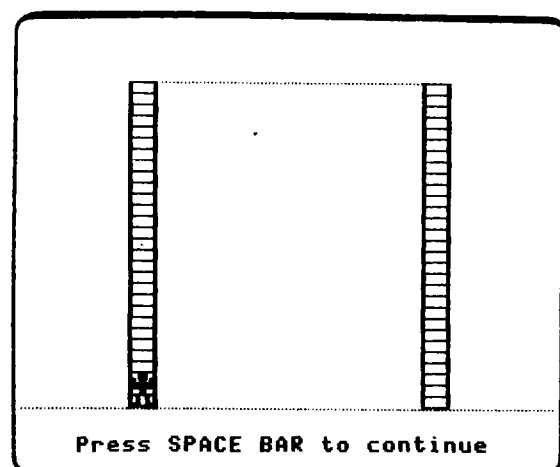
Figure 4

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PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly (Figure 5). If they answer incorrectly on the second try, help is provided by highlighting the columns to be added (Figure 6). The problem must be answered correctly before proceeding to the next problem.
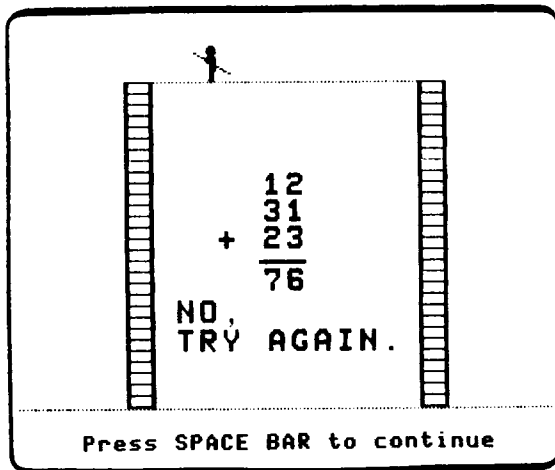
Figure 5

Figure 6

Students receive a scoring frame at the end of a lesson. They are congratulated if they score at or above the mastery level (Figure 7). If they scored below the mastery level, they are encouraged to repeat the program (Figure 8).
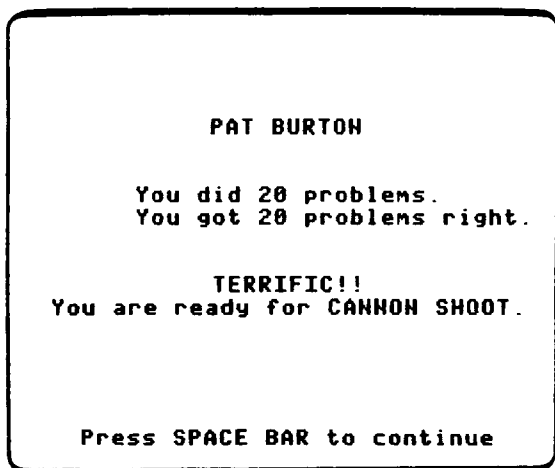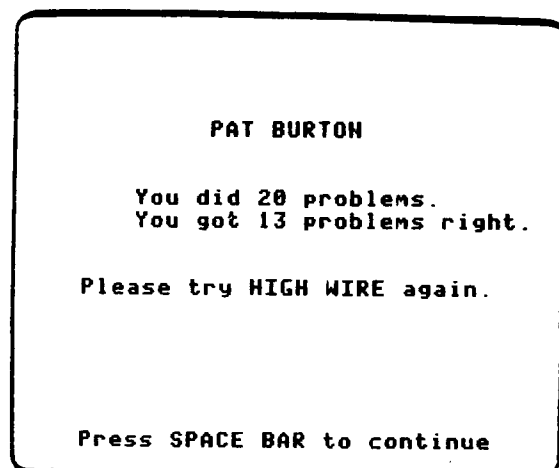
Figure 7

Figure 8

DESCRIPTION

CANNON SHOOT drills on whole number addition objectives covered in the preceding three programs and a variety of new problem types. (See pages 2 and 3 for types.) Graphic reinforcement is provided as students try to catch Zebug in a net after the little creature has been fired from a cannon.

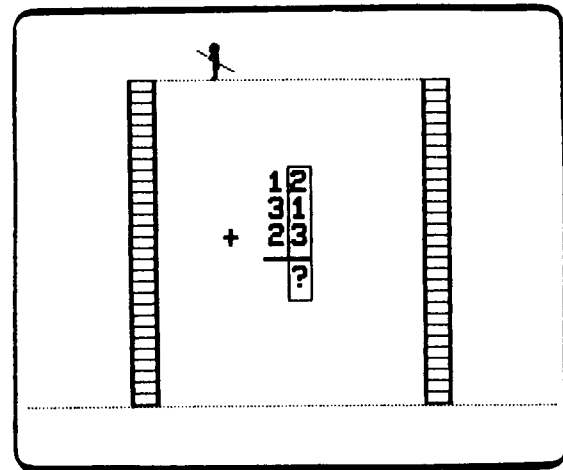|	
Curriculum Area:	Arithmetic
Subject Area:	Addition
Topic:	Whole Number Addition
Type:	Drill and Practice
Grade Range:	2-3
Reading Level:	Beginning Readers
Classroom Use:	Individual

LEARNING OBJECTIVE

After using this courseware, the student will have received practice in:

● adding 1- to 4-digit addends.

CANNON SHOOT (Level 3) Objective Group 1 25 problems 90% mastery					
Obj.	%	Obj.	%	Obj.	%
WA9	16	WA11	8	WA12	4
WA13	8	WA14	8	WA15	8
WA16	8	WA17	8	WA18	4
WA19	4	WA20	8	WA21	8
WA22	8				
2-3 Addends					

PROGRAM PREVIEW

CANNON SHOOT is fourth in a series of whole number addition drills (Figure 1). A total of twenty-five problems are presented using the format shown in Figure 2.

Figure 1

$$+\ \frac{700}{100}$$
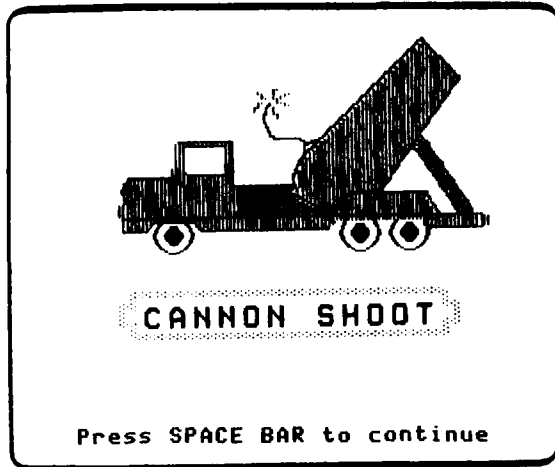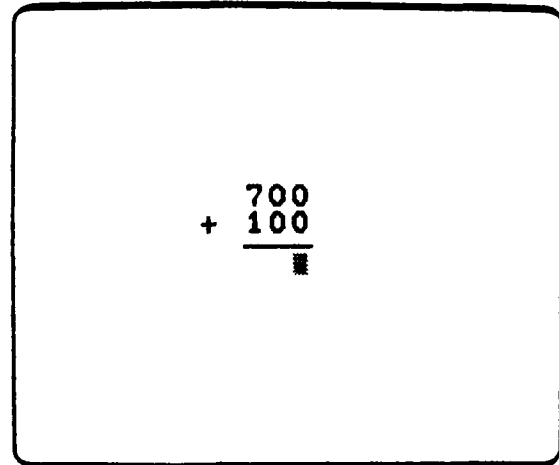
Figure 2

After every five problems, students are given two chances to catch Zebug, fired from a cannon, in a safety net. To catch Zebug, the 'Z' key must be pressed when the cannon ball is directly above the net (Figure 3). A perfect score of ten can be attained by catching Zebug every time during the program (Figure 4).
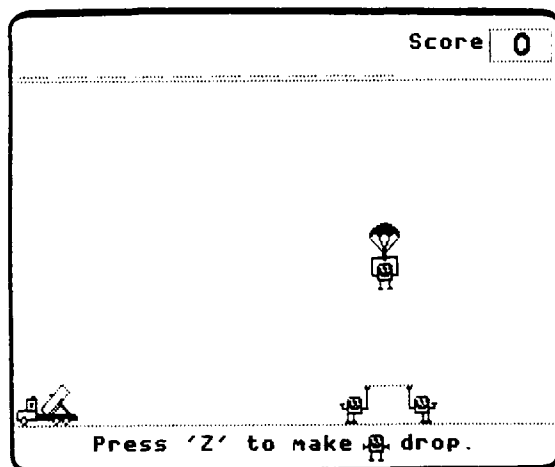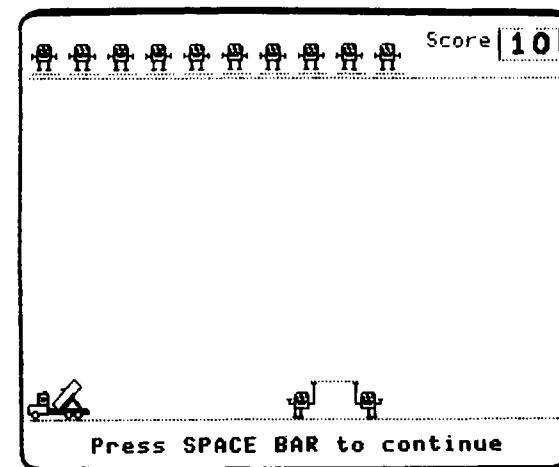
Score 0

Press 'Z' to make drop.

Figure 3

Score 10

Press SPACE BAR to continue

Figure 4

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PROGRAM PREVIEW (continued)

Students are given two opportunities to answer a problem correctly (Figure 5). If they answer incorrectly on the second try, help is provided by highlighting the columns to be added (Figure 6). The problem must be answered correctly before proceeding to the next problem.

```
      322
   +  523
   ------
      745


   NO, TRY AGAIN.


Press SPACE BAR to continue
```

Figure 5

```
      322
   +  523
   ------
      ?5
```

Figure 6

Students receive a scoring frame at the end of a lesson. They are congratulated if they score at or above the mastery level (Figure 7). If they scored below the mastery level, they are encouraged to repeat the program (Figure 8).

```
          CHRIS THOMAS

      You did 25 problems.
      You got 25 problems right.


           NICE JOB!!
   You are ready for ELEPHANT WALK.



   Press SPACE BAR to continue
```

Figure 7

```
          CHRIS THOMAS

      You did 25 problems.
      You got 18 problems right.


   Please try CANNON SHOOT again.




   Press SPACE BAR to continue
```
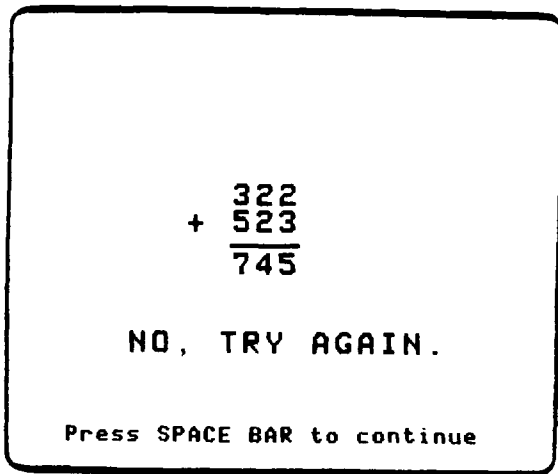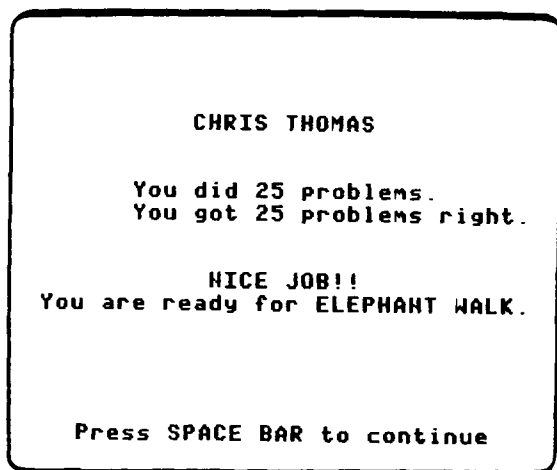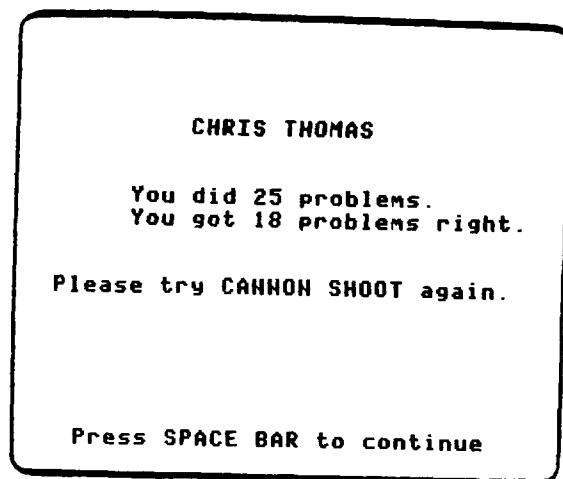
Figure 8

DESCRIPTION

ELEPHANT WALK reviews all the objectives covered in the preceding programs in a timed drill format. In a graphic display, the student's elephant races the computer's elephant to a water bucket. The length of time between steps taken by the computer's elephant can be set by using a management option. (See page 5.)

Curriculum Area:	Arithmetic
Subject Area:	Addition
Topic:	Whole Number Addition
Type:	Drill and Practice
Grade Range:	2-3
Reading Level:	Beginning Readers
Classroom Use:	Individual

LEARNING OBJECTIVE

After using this courseware, the student will have received practice in:

● answering problems for the objectives covered by the other programs within a given time limit.

ELEPHANT WALK (Level 2 and 3) Review Program 20 problems 90% mastery					
Obj.	%	Obj.	%	Obj.	%
WA9	8	WA11	8	WA12	8
WA13	8	WA14	8	WA15	8
WA16	8	WA17	8	WA18	8
WA19	8	WA20	8	WA21	8
WA22	8				
2-3 Addends					

20

PROGRAM PREVIEW

ELEPHANT WALK is the review drill for this collection of programs (Figure 1). It presents twenty problems of the type used in previous drills. For each problem answered correctly, the student's elephant takes a step toward the water bucket (Figure 2).
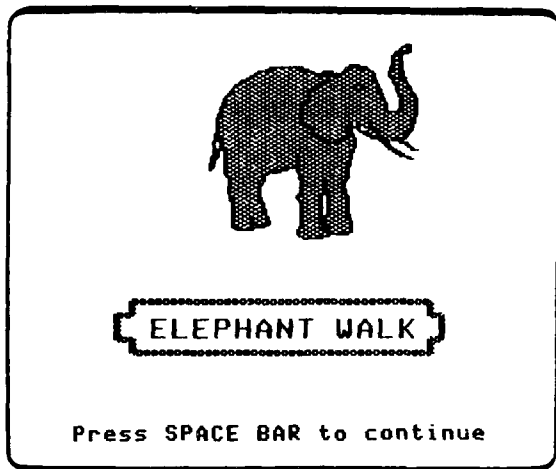
Figure 1
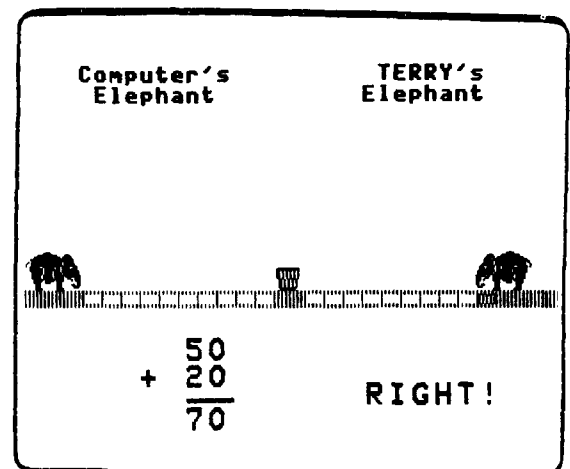
Figure 2

The computer's elephant takes a step toward the water bucket every (x) seconds (Figure 3). The time (x) is set by a management option. (See page 5.) The default value is set at six seconds. The first elephant to reach the water bucket wins and sprays the opposing elephant (Figure 4). In order to present twenty problems, usually more than one race will have to take place. If the twentieth problem is presented in the middle of a race, the race will be completed by doing additional problems. However, the additional problems presented are not reported in the results.

Figure 3

Figure 4

21
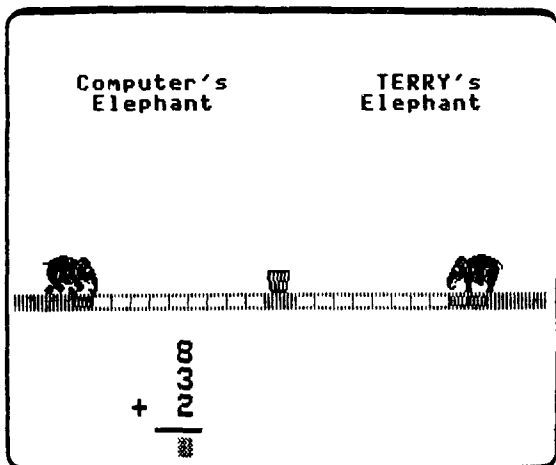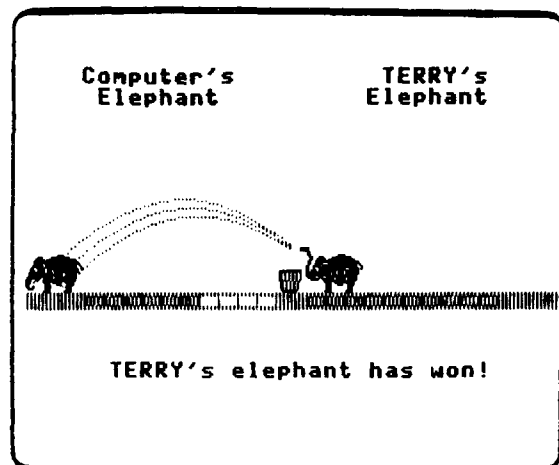
PROGRAM PREVIEW (continued)

Students are given only one opportunity to answer a problem correctly (Figure 5). All problems missed are presented at the end of the program, using the untimed format and providing help (Figure 6). If the graphics have been turned off, the lesson is untimed and no review is given at the end of the lesson.
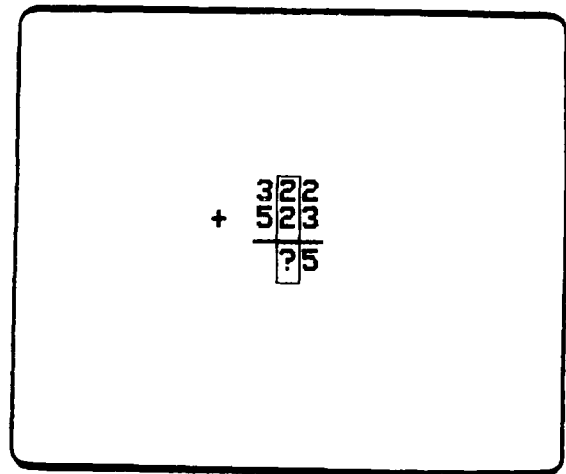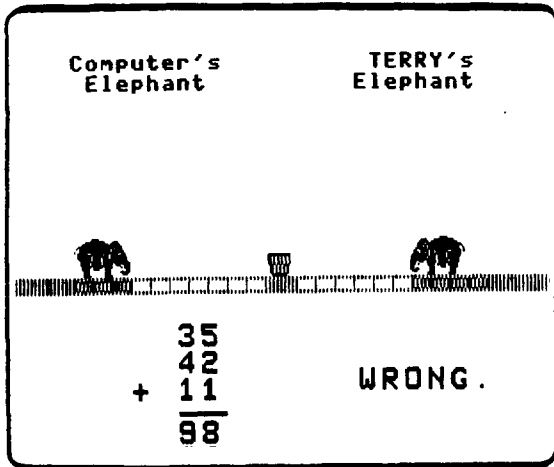

Figure 5
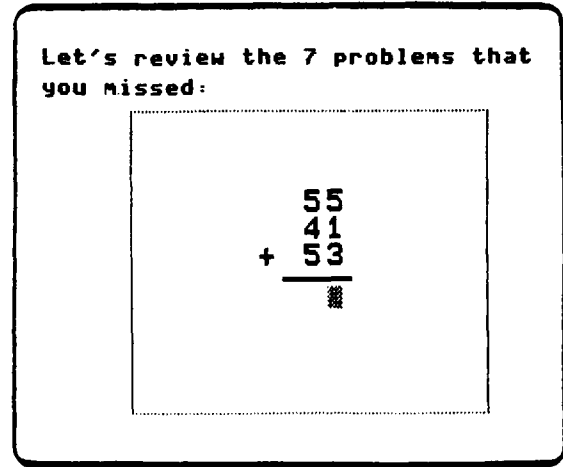
Figure 6

Students receive a scoring frame at the end of a lesson. They are congratulated if they score at or above the mastery level (Figure 7). If they scored below the mastery level, they are encouraged to repeat the program (Figure 8).

Figure 7

Figure 8

22
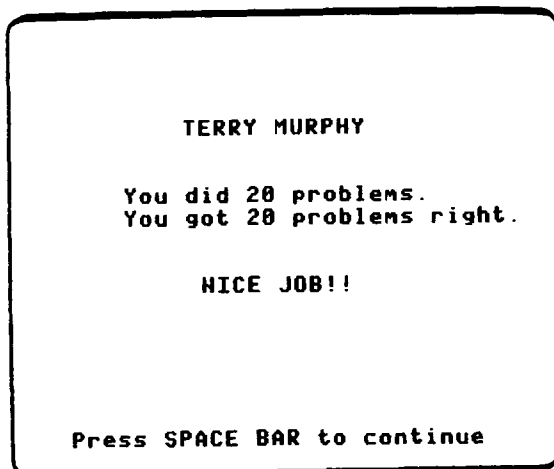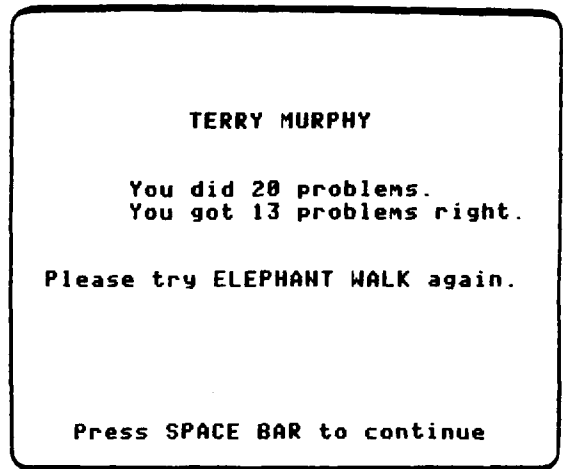
APPENDICES

CREDITS

Circus Math was produced by a MECC development team which included Craig Solomonson, Charles Erickson, H. Bill Way, Paul Wenker, Tim Heap, and Peter Fuglestad. Craig Solomonson was the Project Coordinator.

Circus Math problem generation, sequencing, and scoring algorithms are taken from the MECC timeshare program Arithmetic Drill and Practice. The timeshare program was based on an earlier timeshare program called Compute. The Compute program was developed by the Minneapolis Public Schools under a grant from the Minnesota Council on Quality Education.

The MECC Arithmetic Drill and Practice project for the timeshare system was coordinated by Linda Borry, MECC Instructional Coordinator. Three teachers from the Minneapolis Public Schools who developed the Compute materials were Lyle Abeln, Ron Fish, and Betty Ann Long.

TO THE READER:

MECC has made every effort to ensure the instructional and technical quality of this courseware package. Your comments—as user or reviewer—are valued and will be considered for inclusion in any future version of the product. Please address comments to:

MECC Courseware Development
3490 Lexington Avenue North
St. Paul, MN 55126

USING A PRINTER WITH THIS COURSEWARE

This courseware requires or recommends the use of a printer connected to your computer. Your MECC program diskette contains an option for setting up your printer to work with this courseware.
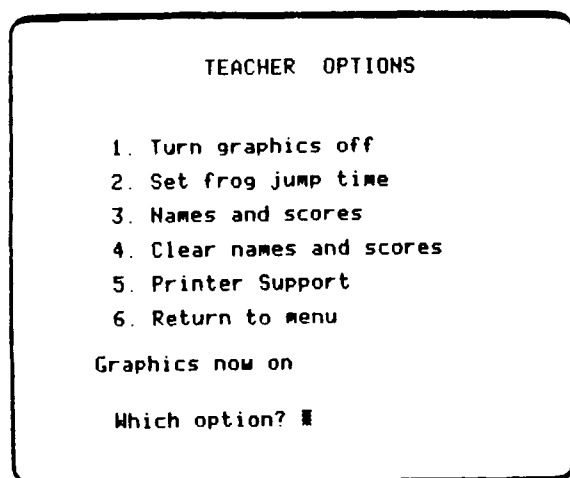
You may be asked whether a printed copy of the output is desired. If the response is "YES," the MECC printer routine diverts the output to the printer. This standard printer routine is designed to recognize and work with Apple serial, Apple parallel, or Apple communications cards.

If your printer is connected to the Apple with one of the above cards, it should not be necessary to do anything further. The printer routine automatically searches Slots 1 and 2 in the computer and determines the kind of printer interface card and the slot location. However, if your printer is connected to the Apple by an interface card other than those listed above or your printer requires special configuration commands, it will be necessary to follow the procedure given below.

Alternate Printer Set-Up Procedure

If you determine that the above routine does not automatically set up your printer, there are two possibilities. An option called Printer Support will either be visible or hidden in the main menu. In the latter case, press CONTROL-A when the main menu appears on the computer screen.

You will see a Teacher Options frame similar to the example in Figure 1 or a Printer Support frame like the one in Figure 2. If the Teacher Options menu appears, select Option 5, "Printer Support."
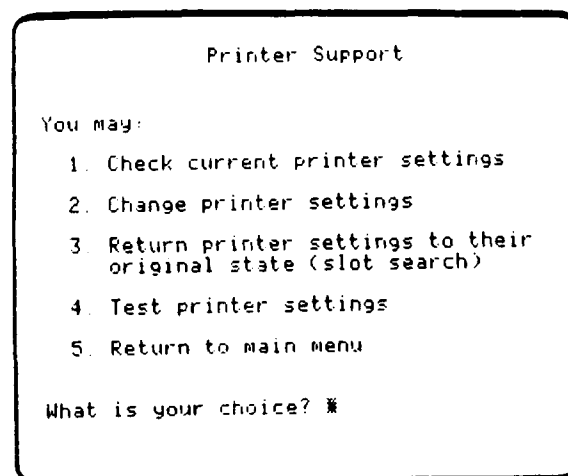
```
        TEACHER  OPTIONS


    1. Turn graphics off
    2. Set frog jump time
    3. Names and scores
    4. Clear names and scores
    5. Printer Support
    6. Return to menu

  Graphics now on

  Which option? █
```

Figure 1

```
          Printer  Support

You may:
    1. Check current printer settings

    2. Change printer settings

    3. Return printer settings to their
       original state (slot search)

    4. Test printer settings

    5. Return to main menu


  What is your choice? █
```

Figure 2

Printer Support Option 1 shows the current printer settings. The default printer settings are as shown in Figure 3, or if they have been changed, you will see a frame similar to Figure 4.

```
┌─────────────────────────────────┐        ┌─────────────────────────────────┐
│        Printer Support          │        │        Printer Support          │
│                                 │        │ The current printer settings are│
│                                 │        │    Slot  1                      │
│ This diskette is currently set  │        │    Commands                     │
│ to the                          │        │        PRINT "▓!"               │
│ default setting, which is to    │        │    Type of printer              │
│ search                          │        │        APPLE DMP                │
│ slots 1 and 2 for a recognizable│        │                                 │
│ card                            │        │                                 │
│ each time the diskette is       │        │                                 │
│ started up.                     │        │                                 │
│                                 │        │                                 │
│                                 │        │                                 │
│     Press SPACE BAR to continue │        │     Press SPACE BAR to continue │
└─────────────────────────────────┘        └─────────────────────────────────┘
```

| Figure 3 | Figure 4 |

Printer Support Option 2 allows you to change printer settings. When you choose this option, you will see the frame in Figure 5. You must identify the type of printer interface card you are using.

If you are using a communications card, select the printer speed and identify the slot the card is located in (Figure 6).

```
┌─────────────────────────────────┐        ┌─────────────────────────────────┐
│        Printer Support          │        │        Printer Support          │
│                                 │        │                                 │
│                                 │        │                                 │
│ 1  Apple communications board   │        │ 1  High speed (usually 30 cps)  │
│    (an obsolete card that is not│        │ 2  Low speed (usually 10 cps)   │
│    compatible with the Apple //e)│       │                                 │
│                                 │        │                                 │
│ 2  Any other type of printer    │        │ Which printing speed do you want│
│    interface card (e.g., parallel│       │ to use? 1                       │
│    or serial, Centronics type,  │        │                                 │
│    etc.)                        │        │                                 │
│                                 │        │ Which slot is the communications│
│ Which type of printer interface │        │ card in? 2▓                     │
│ will you be using? ▓            │        │                                 │
│                                 │        │                                 │
└─────────────────────────────────┘        └─────────────────────────────────┘
```
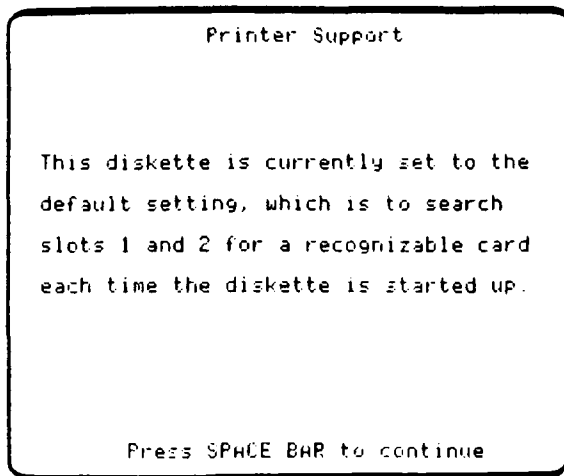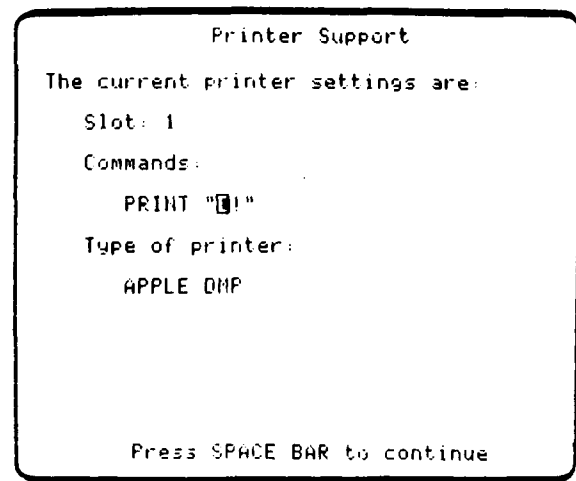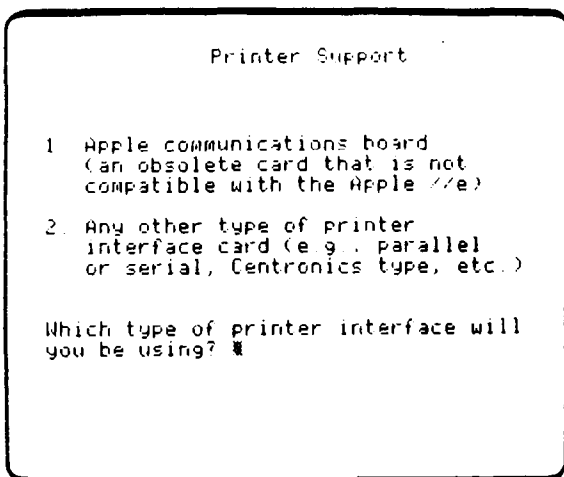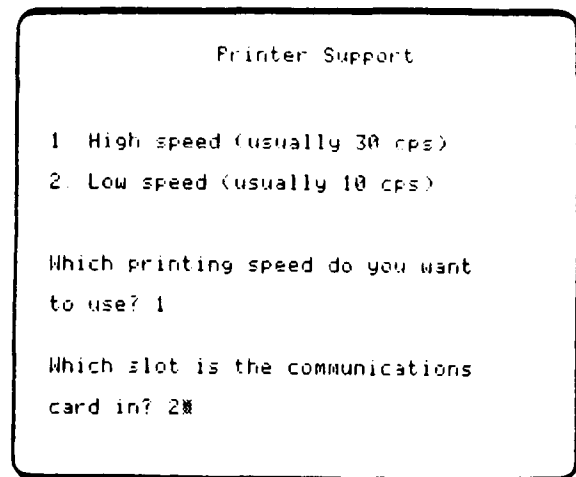
| Figure 5 | Figure 6 |

If you are using any other type of printer interface card, you will need to identify the slot in which the card is located and any special commands used by the printer (Figure 7).

```
         Printer Support


The printer interface card may be in any
slot 1 - 7.  (Most commonly 1 or 2.)


Which slot is your interface card in? 1


Does your printer require any special
commands? YES█
```

Figure 7

Caution: Incorrectly identifying the slot number or the type of printer interface card will result in the system becoming inoperable. If this occurs, you must restart the computer.

If necessary, enter special configuration commands. These commands should be in your manufacturer's printer or interface card manual. For control characters and special characters you may enter the CHR$(n) value (Figure 8).

The use of a CHR$(n) will be translated into its corresponding character. For example, a CHR$(27) will be converted on screen to an inverse bracket (Figures 8 and 9).

```
         Printer Support

Please type in the special commands for
your printer.  Type an extra 'RETURN'
when you have finished

    PRINT "CHR$(27)!█
         .
```

Figure 8

```
         Printer Support

Please type in the special commands for
your printer    Type an extra 'RETURN'
when you have finished


    PRINT "█!"




Are the above commands correct? YES█
```

Figure 9

When you have completed the change of printer settings, you will be asked to name the printer you are interfacing (Figure 10). Press RETURN to bypass the question.


```
                        Printer Support




                What printer are you making these
                settings for? APPLE DMP▓
```
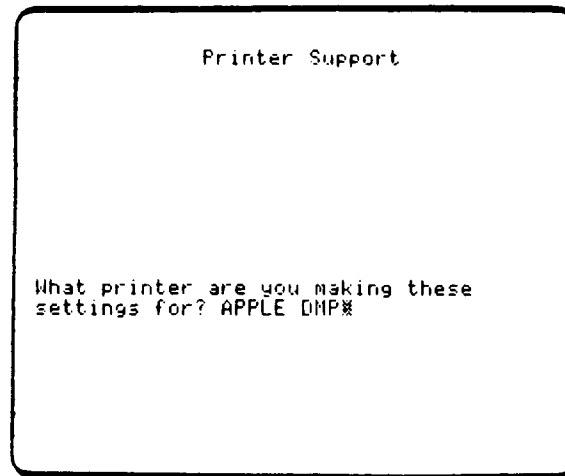
Figure 10

Printer Support Option 3 allows you to return printer settings to the default setting. This option tells the program to search Slots 1 and 2 for a printer interface card and that no special commands are necessary.

Printer Support Option 4 allows you to test the printer to make sure it is correctly set up. The following text should be printed:

```
 o  Printer Test                                                          o
 o                                                                        o
 o   !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_  o
 o  `abcdefghijklmnopqrstuvwxyz{|}~                                        o
 o                                                                        o
 o   !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_  o
 o  `abcdefghijklmnopqrstuvwxyz{|}~                                        o
 o                                                                        o
 o   !"#$%&'()*+,-./0123456789:;<=>?@ABCDEFGHIJKLMNOPQRSTUVWXYZ[\]^_  o
 o  `abcdefghijklmnopqrstuvwxyz{|}~                                        o
```

If the printer test does not appear as shown above, check your printer or interface card manual for special configuration commands.

NOTE:

1.   Once the printer options have been set (Option 2), the standard slot searching routine will not be executed. Instead, the Apple will divert output to the slot specified.

2.   The commands are saved on the diskette and thus are permanent until the printer support program is used again to change the printer commands.

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The Minnesota Educational Computing Corporation is an organization established in 1973 to assist Minnesota schools and colleges in implementing educational computing. MECC provides a variety of services to education, including 1) development and distribution of computer software; 2) in-service training for educators and development of materials for conducting training; 3) educational computing assistance through newsletters and computer purchase contracts; and 4) management information services, including the development and maintenance of statewide payroll/personnel and financial accounting software and administrative computer packages. MECC's knowledge and expertise in the educational computing field comes from more than a decade of working with and providing leadership for thousands of local educators on a daily basis.

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- **Help Line**
  If you have any problems using MECC software:
  1) make note of the name and version number of the product;
  2) note the brand and model of the equipment involved, as well as the type of printer card used if the problem concerns a printer;
  3) write or call the Help Line to describe the problem **(612/481-3660).**

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